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NEW OR LITTLE-KNOWN TIPULIDÆ IN THE AMERICAN MUSEUM OF NATURAL HISTORY (DIPTERA).—I

By Charles P. Alexander[1]

The crane-flies discussed in the present report were collected by Mr. G. H. H. Tate on Mount Roraima, Brazil, and on Mount Duida, Venezuela. The material is of especial interest because of the geological structure and isolation of these two mountains. The tipulid fauna of the two localities is distinct, but this may prove to be a matter of insufficient collecting, since certain of the species are wide-spread in the Neotropics. Most of the species described as new will probably be found to be restricted to the mountains in question. I am greatly indebted to Mr. Curran for the opportunity of studying this very interesting series of crane-flies. All types and uniques are preserved in the collection of The American Museum of Natural History.

The conditions encountered by Mr. Tate in his ascent of Roraima have been delightfully described in his article, 'Through Brazil to the Summit of Mount Roraima,' National Geographic Magazine, November, 1930, LVIII, pp. 585–605. The following paragraph is of interest. "With nightfall and the lighting of the gasoline lantern came a host of night moths, daddy longlegs, and flying creatures that, despite our search, we seldom found by day."

Besides the species recorded at this time, the series included a few additional species in condition too poor to be determined.

The collection includes the following Tipulidæ.

Mt. Roraima, Brazil

Tipula arecuna, new species
Brachypremna breviventris (Wiedemann)
Limonia (*Limonia*) *roraimæ*, new species
Limonia (*Neolimnobia*) *diva* (Schiner)
Limonia (*Dicranomyia*) *dolerosa*, new species
Limonia (*Geranomyia*) *tatei*, new species
Limonia (*Geranomyia*) *arecuna*, new species
Limnophila roraima, new species
Limnophila roraimicola, new species

Mt. Duida, Venezuela

Ozodicera duidensis, new species
Tipula duidæ, new species
Limonia (*Rhipidia*) *conica turrifera*, new subspecies
Limonia (*Geranomyia*) *rubiginosa*, new species
Helius (*Helius*) *albitarsis* Osten Sacken
Limnophila kaieturana Alexander
Atarba (*Atarba*) *unilateralis*, new species
Teucholabis (*Teucholabis*) *duidensis*, new species

[1]Massachusetts State College Amherst.

TIPULINÆ

Ozodicera (Ozodicera) duidensis, new species

Figures 1, 11 and 12

General coloration yellowish gray, the præscutum with four dark brown stripes, the intermediate pair only narrowly separated; flagellar branches short; wings brownish gray; male hypopygium with the apex of the sternite produced into a slender roughened point immediately dorsad of the point of insertion of the dististyles; inner dististyle narrowed to a long chitinized point, with a smaller sublateral spine.

MALE.—Length, about 20–23 mm.; wing, 17.5–20 mm.; antenna, about 4.3–4.4 mm.

FEMALE.—Length, about 22 mm.; wing, 18 mm.

Frontal prolongation of head elongate, dark brown; nasus very small but distinct. Antennæ with the basal segment dark brown, the second obscure yellow; flagellum entirely black; flagellar branches (male) short, the longest (flagellar segment five) about two-thirds the segment; branches of flagellar segments two to seven small, triangular in outline; terminal flagellar segments elongate, slightly exceeding the remainder of flagellum. Head brownish gray, somewhat clearer gray adjoining the eyes; anterior vertex narrow, more buffy; front similarly colored, variegated with brown.

Mesonotal præscutum yellowish gray, with four dark brown stripes, the intermediate pair only narrowly and vaguely divided; pseudosutural foveæ small, blackened, nearly marginal in position; scutum gray, the centers of the lobes darker; scutellum gray, with a vague capillary brown median vitta; postnotal mediotergite gray. Pleura gray, indistinctly variegated with brown on the anepisternum, ventral sternopleurite and dorsal pleurotergite. Halteres elongate, dark brown, the knobs slightly paler, more yellowish brown. Legs with the coxæ pruinose; trochanters reddish brown; femora and tibiæ reddish brown, the tips narrowly dark brown or black; tarsi reddish brown, the outer segments blackened. Wings (Fig. 1) with a brownish-gray tinge, the costal region and stigma more yellowish brown; a vague pale brown seam on the anterior cord; veins brown. Venation: distal half of R_{1+2} pale, subobliterated; cell M_1 broadly sessile.

Abdominal tergites reddish yellow, narrowly blackened laterally, the dorsomedian region dark brown, on the outer segments the areas becoming more extensive and finally confluent; caudal margins of segments restrictedly pale yellow; sternites obscure yellow, the extreme caudal margin yellow. Male hypopygium (Fig. 11) with the sternite and basistyle extended far beyond the level of the tergite, the dististyles at extreme tip. Ninth tergite (Fig. 12) with a V-shaped median notch, the broad lateral lobes feebly emarginate, the median lobule a little more produced caudad than the lateral shoulders. Apex of the fused basistyle and sternopleurite produced into a slender blackened point, its surface set with abundant tubercles. Dististyles about as figured; inner style narrowed to a chitinized point, with a smaller, more obtuse subterminal point.

HABITAT.—Venezuela.

HOLOTYPE, ♂, Mount Duida, November 30, 1928 (G. H. H. Tate); Coll. No. 412. ALLOTOPOTYPE, ♀, with the type. PARATOPOTYPES, two fragmentary specimens, sex unknown, one collected with the types, the other on January 11, 1929; Coll. No. 651.

Ozodicera (*Ozodicera*) *duidensis* is best defined by the combination of grayish coloration, short antennal pectinations, and the structure of the male hypopygium. Its closest ally would appear to be *O.* (*O.*) *bispinifera* Alexander (Brazil).

Tipula arecuna, new species

Figures 13 and 14

General coloration of thorax black, including three polished brownish-black stripes on an obscure yellow ground; scutal lobes blackened; scutellum yellowish testaceous, the parascutella abruptly blackened; thoracic pleura chiefly blackened; antenna short, the basal flagellar segments bicolorous; wings yellow, with a heavy tesselated brown and grayish-brown pattern; male hypopygium with the tergite thin, feebly sclerotized, with a deep U-shaped median notch, the lateral lobes broad, obtusely rounded at tips; no appendages on the eighth and ninth sternites.

MALE.—Length, about 14 mm.; wing, 17.5 mm.

Frontal prolongation of head dark brown; nasus slender; palpi with the basal segment obscure yellow, the second and third dark brown, more whitish at the incisures; outer segment black. Antennæ short; scapal segments honey-yellow; flagellum obscure yellow, the segments ringed just beyond base with brown, this ring including the four verticils which exceed the segments in length; outer flagellar segments more uniformly darkened. Head brown, the front more yellowish brown.

Posterior pronotum obscure yellow medially, passing into dark brown on the sides. Mesonotal præscutum with the ground-color polished obscure yellow, with three polished dark brown or brownish-black stripes, the median stripe reaching the suture, the broad lateral stripes including the entire lateral margins of the sclerite behind the punctiform psuedosutural foveæ; scutal lobes almost entirely blackened, the median region very restrictedly obscure yellow; scutellum yellowish testaceous, the parascutella abruptly black; postnotal mediotergite polished black, vaguely brightened along the lateral margins. Pleura chiefly brownish black, with vague obscure yellow areas on the posterior sternopleurite and ventral pteropleurite; dorsopleural region buffy-yellow. Halteres obscure yellow. Legs with the fore and middle coxæ brownish black, the posterior coxæ paler, more yellowish brown; trochanters yellow; remainder of legs broken. Wings with the ground-color cream-yellow, cell *Sc* bright yellow, cell *C* chiefly infumed; a very heavy brown and grayish brown tesselated pattern that is almost like that found in *bigotiana*, including four solid brown darkenings in cell *Sc*, these being narrower than the interspaces; veins yellow, infuscated in the clouded areas; obliterative areas extensive. Venation: *Rs* long; R_{1+2} entire; petiole of cell M_1 a little longer than its petiole.

Abdominal tergites brownish yellow, margined laterally with brownish black, the bases of the segments somewhat darker than the apical portions; sternites and hypopygium more uniform yellow. Male hypopygium (Fig. 13) with the ninth tergite (Fig. 14) large, depressed, entirely pale and but feebly sclerotized, the caudal margin with a deep U-shaped notch, the sublateral lobes thus formed broadly and obtusely rounded at apex. Tergite and sternite fused into a ring. Basistyle complete. Inner dististyle as shown; outer dististyle of unique type apparently destroyed, not visible. Eighth and ninth sternites without appendages.

HABITAT.—Brazil.

HOLOTYPE, ♂, Mount Roraima, summit, altitude 8600 feet, November, 1927 (G. H. H. Tate); Coll. No. 26.

The specific name, *arecuna*, is that of the tribe of Indians living nearest the mountain. In its wing-pattern, *Tipula arecuna* much resembles species like *T. bigotiana* Alexander and *T. mocoa* Alexander, differing in the coloration of the body, especially of the thorax. The structure of the male hypopygium would seem to exclude the present species from the *glaphyroptera* group, where, at first sight, it would appear to belong.

Tipula duidæ, new species

Figure 15

Belongs to the *glaphyroptera* group; mesonotum light golden-yellow, with three dark chocolate-brown stripes; antennæ short, bicolorous; femora blackened, with a conspicuous yellow subterminal ring; wings creamy-yellow, with a heavy brown pattern; male hypopygium with the median appendage of the eighth sternite small, simple.

MALE.—Length, about 14–15 mm.; wing, 16.5–17.5 mm.

Frontal prolongation of head obscure yellow dorsally, passing into black beneath; nasus long and slender; palpi with the basal two segments light brown, the remainder brownish black, the apex of the third pale. Antennæ (male) short, if bent backward, not attaining the wing-root; scape yellow, the base of the first segment darkened; flagellar segments bicolorous, blackened at base, the longer apical portion yellow; outer segments more uniformly darkened. Head brownish yellow, more suffused with brown on anterior vertex and on genæ, with an additional capillary dark brown vitta, the ground-color most evident on either side of the posterior vertex.

Pronotum dark brown medially, paler sublaterally. Mesonotal præscutum light golden-yellow, with three dark chocolate-brown stripes that are nearly confluent behind; scutum brownish gray, the centers of the lobes dark brown; scutellum gray, broadly dark brown medially; postnotal mediotergite yellowish gray, with a blackened ⊥-shaped marking. Pleura brown, the ventral pleurotergite more blackened; dorso-pleural region buffy brown. Halteres long, pale brown, the base of stem narrowly brightened, the knobs, in cases, brownish yellow. Legs with the coxæ and trochanters chiefly brown; femora dark brown to black outwardly, more yellowish at base, with a narrow but conspicuous yellow subterminal ring, the extreme tip of the segment paling from black to brown or yellow; tibiæ light brown, the tips narrowly darkened; tarsi light brown, the outer segments blackened. Wings with the ground-color creamy yellow, the costal margin more saturated; a heavy brown pattern, including four solid darker brown areas in cell *Sc;* a heavy tesselate brown pattern, covering the entire wing-disk, being more extensive than the pale ground-color except in cells *R* and *M;* in outer end of cell *M* a ring-like area, gray, margined with brown; veins dark, paler in the yellowish areas. Venation: R_{1+2} entire, the distal two-thirds pale yellow; petiole of cell M_1 from one-third to two-thirds longer than *m;* fork of M_{3+4} at near one-third the length of cell *1st* M_2.

Abdominal tergites brown, more blackened laterally, before caudal margin on either side with a brighter yellow area; subterminal segments more uniformly dark

brown; sternites yellow, the caudal margins of the segments narrowly dark brown. Male hypopygium (Fig. 15) small, the ninth tergite extensive, narrowed outwardly, terminating in two small spinous points that are separated by a small U-shaped median notch; when viewed from the side, these points appear as small flattened blades; lateral margins of tergite fringed with setæ. Outer dististyle a slender, weakly clavate lobe. Appendage of eighth sternite a small, simple, finger-like lobe that is about three times as long as wide at base.

HABITAT.—Venezuela.

HOLOTYPE, ♂, Mount Duida, January 11, 1929 (G. H. H. Tate); Coll. No. 552. PARATOPOTYPE, ♂.

Tipula duidæ is best distinguished from the other members of the *glaphyroptera* group with tesselated wings by the combination of characters summarized above.

Brachypremna breviventris (Wiedemann)

Tipula breviventris WIEDEMANN, 1821, 'Dipt. Exot.,' I, p. 43.

Tipula breviventris WIEDEMANN, 1828, 'Aussereur. zweifl. Ins.,' I, p. 47.

Brachypremna breviventris OSTEN SACKEN, 1886, Berliner Ent. Zeitschr., XXX, p. 161.

Brachypremna breviventris ALEXANDER, 1912, Journ. N. Y. Ent. Soc., XX, pp. 230–231.

Slopes of Mount Roraima, Brazil, altitude 4000 feet, November 5, 1927 (Paulo). This fly has a wide distribution in northern South America.

LIMONIINÆ

Limonia (Limonia) roraimæ, new species

Figure 2

General coloration polished yellow; rostrum, palpi, and antennæ black; head blackish gray; halteres yellow; femora yellowish brown, darkest at base, with a conspicuous, obscure yellow, nearly terminal ring; wings yellow, more saturated in the costal and apical portions, with conspicuous dark brown seams and paler brown washes; basal section of R_{4+5} very short.

Sex(?).—Wing, 9–10.4 mm.

Rostrum and palpi black. Antennæ black throughout; basal flagellar segments subtriangular to cordiform, with very short, thick, apical pedicels; verticils unilaterally arranged, not exceeding the segments. Head blackish gray; anterior vertex reduced to a linear strip.

Pronotum dark brown medially, paling to yellow on sides. Mesonotal præscutum chiefly polished yellow, the interspaces in front a little darker; scutellum medially and the cephalic portion of the postnotal mediotergite more darkened. Pleura yellow. Halteres yellow. Legs with the coxæ and trochanters yellow; femora yellowish brown, darkest at extreme base, with a conspicuous obscure yellow, nearly terminal ring; tibiæ brownish yellow, the tips narrowly darkened; outer tarsal segments blackened; claws with about three teeth, the outermost longest. Wings (Fig. 2) with a bright yellow ground-color, the prearcular, costal, and outer radial

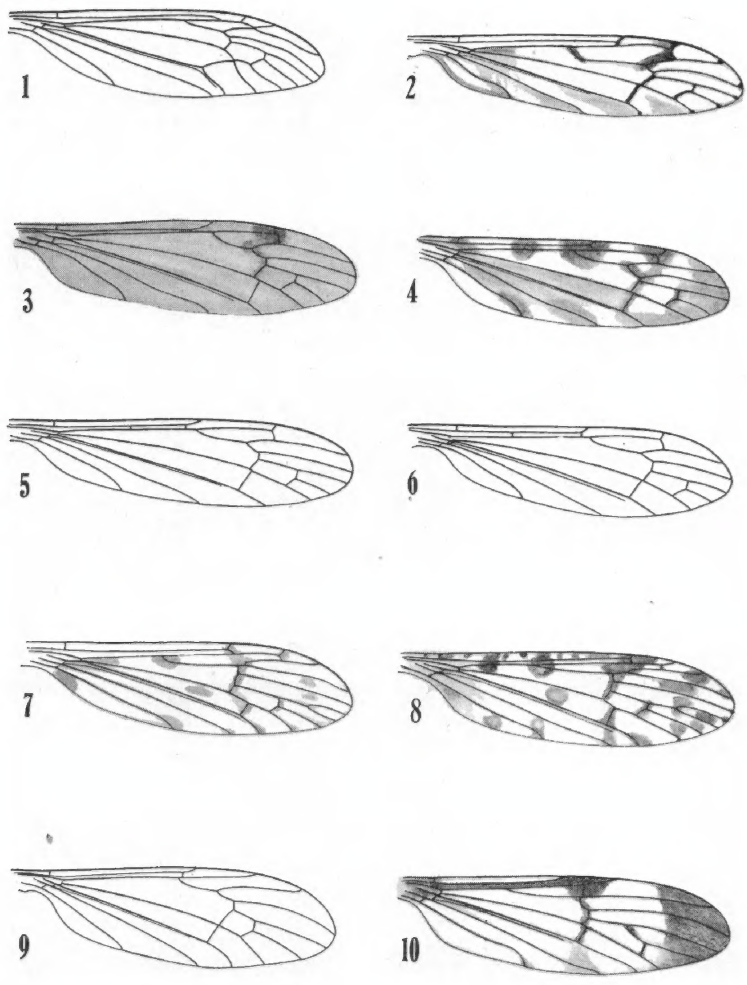

Fig. 1. *Ozodicera* (*Ozodicera*) *duidensis*, new species; wing.
" 2. *Limonia* (*Limonia*) *roraimæ*, new species; wing.
" 3. *Limonia* (*Dicranomyia*) *dolerosa*, new species.; wing.
" 4. *Limonia* (*Geranomyia*) *tatei*, new species; wing.
" 5. *Limonia* (*Geranomyia*) *arecuna*, new species; wing.
" 6. *Limonia* (*Geranomyia*) *rubiginosa*, new species; wing.
" 7. *Limnophila roraima*, new species; wing.
" 8. *Limnophila roraimicola*, new species; wing.
" 9. *Atarba* (*Atarba*) *unilateralis*, new species; wing.
" 10. *Teucholabis* (*Teucholabis*) *duidensis*, new species; wing.

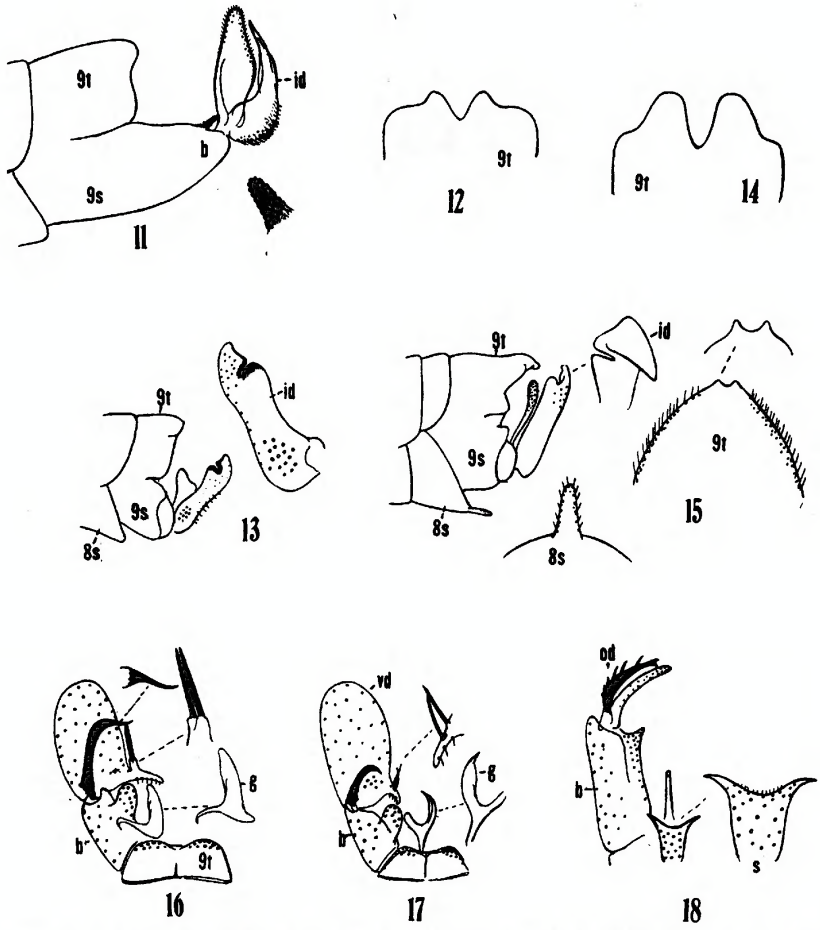

Fig. 11. *Ozodicera* (*Ozodicera*) *duidensis*, new species; male hypopygium, lateral aspect.

" 12. *Ozodicera* (*Ozodicera*) *duidensis*, new species; male hypopygium, ninth tergite, dorsal aspect.

" 13. *Tipula arecuna*, new species; male hypopygium, lateral aspect.

" 14. *Tipula arecuna*, new species; male hypopygium, ninth tergite, dorsal aspect.

" 15. *Tipula duidæ*, new species; male hypopygium, details.

" 16. *Limonia* (*Geranomyia*) *tatei*, new species; male hypopygium.

" 17. *Limonia* (*Geranomyia*) *arecuna*, new species; male hypopygium.

" 18. *Atarba* (*Atarba*) *unilateralis*, new species; male hypopygium.

[Symbols: b = basistyle; g = gonapophysis; id = inner dististyle; od = outer dististyle; s = sternite; t = tergite; vd = ventral dististyle.]

regions more saturated yellow; a restricted dark brown pattern, including narrow seams at origin of *Rs;* fork of *Sc;* R_2 and R_{1+2}; along cord and outer end of cell *1st* M_2; and as narrow marginal clouds at ends of all longitudinal veins; paler brown washes in base of cell *R;* at stigma, the latter sending a conspicuous darker brown extension basad over the anterior cord; posterior cells of wing, from M_3 to *2nd A* with marginal brown washes, leaving the region of the vein clear yellow; veins yellow, darker in the clouded areas. Venation: Sc_1 ending about opposite two-thirds to three-fourths the length of *Rs*, Sc_2 near its tip; *Rs* angulated at origin; basal section of R_{4+5} very short, arcuated; cell *1st* M_2 relatively large, subequal in length to vein M_{1+2} beyond it; basal section of M_3 long, arcuated; *m-cu* at or before the fork of *M*, about one-half longer than the distal section of Cu_1.

Abdominal tergites obscure yellow, the organ broken beyond segment two.

HABITAT.—Brazil.

HOLOTYPE, sex(?), Mount Roraima, summit, altitude 8600 feet, November, 1927 (G. H. H. Tate). PARATOPOTYPE, Sex?

Limonia (*Limonia*) *roraimæ* is most closely allied to *L.* (*L.*) *sanctæ martæ* Alexander (Colombia) in the general features of wing-pattern, differing in the details of venation and coloration, such as the darkened tips of the femora in the latter species.

Limonia (Neolimnobia) diva (Schiner)

Limnobia diva SCHINER, 1868, 'Novara Reise,' Diptera, p. 46.

Dicranomyia (*Neolimnobia*) *diva* ALEXANDER, 1928, Dept. Sci. and Agr. Jamaica, Ent. Bull., IV, p. 20.

Three specimens, Mount Roraima, Brazil, summit, altitude 8600 feet, November, 1927 (G. H. H. Tate). The species has a wide range in the northern Neotropical region.

Limonia (Rhipidia) conica turrifera, subspecies

Differs from typical *conica* Alexander (Trans. American Ent. Soc., 1914, XL, pp. 227–228) of British Guiana, only in the more restricted dark wing-pattern. The dark areas of the membrane are small, clearly delimited, and, for the most part, entirely surrounded by the pale yellow ground-color. In the typical form, the darkened subcostal areas are triangular in outline, widest at caudal ends and merging into the dark ground-color of the medial and posterior regions of the wing.

HABITAT.—Venezuela.

HOLOTYPE, ♀, Mount Duida, November 18, 1928 (G. H. H. Tate); Coll. No. 338. PARATOPOTYPE, a broken ♀, November 4, 1928; Coll. No. 149.

Limonia (Dicranomyia) dolerosa, new species

Figure 3

General coloration black, including the disk of the mesonotal præscutum; antennæ black throughout; thoracic pleura brownish black, traversed by a narrow

transverse pale line on the pteropleurite; legs chiefly black, the extreme femoral tips vaguely paler, especially on their flexor surface; wings with a strong blackish tinge, the stigma and a diffuse seam along cord somewhat darker; free tip of Sc_2 about its own length before R_2.

FEMALE.—Length, about 10–11 mm.; wing, 10.3–10.5 mm.

Rostrum relatively elongate, exceeding one-half the remainder of head, black; palpi black. Antennæ black throughout; flagellar segments long-oval, the verticils shorter than the segments; terminal segment longer than the penultimate. Head black, very sparsely pruinose; anterior vertex a little wider than the diameter of the scape.

Pronotum black, paler laterally. Mesonotal præscutum chiefly covered by three nearly confluent black stripes, the humeral and lateral portions obscurely brightened; scutal lobes blackened, the median area pale; scutellum brownish testaceous; postnotal mediotergite black, restrictedly paler on the anterolateral portions. Pleura chiefly brownish black, interrupted by a narrow pale transverse line extending from the wing-root, crossing the pteropleurite to the meral region. Halteres dark brown, the base of the stem restrictedly pale yellow. Legs with the fore coxæ black, the remaining coxæ and all trochanters obscure yellow; femora dark brown, obscurely brightened at extreme base and tip, the latter more especially so on the flexor surface; remainder of legs black. Wings (Fig. 3) with a strong blackish tinge, the oval stigma darker; an ill-defined darkened cloud on the cord; paler longitudinal streaks in certain cells, more especially *R*, *M*, and M_4, crossing the cord and outer end of cell *1st* M_2 and forming bullate areas; veins dark brown. Venation: Sc_1 ending opposite the origin of *Rs*, Sc_2 some distance from its tip, Sc_1 alone being more than one-half *Rs;* free tip of Sc_2 some distance before the level of R_2; *m-cu* beyond the fork of *M* about one-third longer than the distal section of Cu_1; cell *2nd A* wide.

Abdominal tergites black, the basal sternites obscure yellow, the outer segments more blackened, especially laterally. Ovipositor with the tergal valves slender, relatively short and straight, narrowly blackened at bases; sternal valves blackened at bases, their tips reddish horn-color.

HABITAT.—Brazil.

HOLOTYPE, ♀, Mount Roraima, summit, altitude 8600 feet, November, 1927 (G. H. H. Tate). PARATOPOTYPE, ♀.

In its strongly infumed wings, *Limonia* (*Dicranomyia*) *dolerosa* is most similar to *L.* (*D.*) *dampfi* (Alexander), of Mexico, and *L.* (*D.*) *selkirki* (Alexander), of the Islands of Juan Fernandez, differing in the details of coloration and venation, especially the wide second anal cell.

Limonia (Geranomyia) tatei, new species

Figures 4 and 16

General coloration reddish gray, the præscutum with five narrow liver-brown stripes, the outermost pair on the lateral margins; knobs of halteres darkened; femora with two dark brown and two yellow annuli; wings cream-yellow, with a very heavy brown pattern, including the broad apex; Sc_1 ending at near one-third the length of *Rs;* male hypopygium with the rostral spines of the ventral dististyle arising from a common tubercle.

MALE.—Length, excluding rostrum, about 5.5 mm.; wing, 7.4 mm.; rostrum, about 3.5 mm.

FEMALE.—Length, excluding rostrum, about 6 mm.; wing, 7.2 mm.; rostrum, about 3.4 mm.

Rostrum relatively elongate, exceeding one-half the length of body, black, the distal third of labial palpi paling to brown; maxillary palpi black. Antennæ short, black; flagellar segments subcylindrical, without pedicels. Head dark gray, the posterior vertex with a blackish area on either side of the median line.

Mesonotal præscutum with the ground-color reddish, sparsely pruinose, especially laterally behind, with five dark liver-brown stripes, the three intermediate ones narrow, but still wider than the interspaces, the outermost stripes occupying the lateral margins of the sclerite; median area of scutum yellowish, the lobes gray, margined with liver-brown, most intense and best defined on the mesal margin of lobe; scutellum pale brownish testaceous; postnotal mediotergite blackish. Pleura blackened dorsally, the sternopleurite and meron paler, more brownish. Halteres with base of stem yellow, the remainder, including knobs, dark brown. Legs with the coxæ brownish testaceous; trochanters obscure yellow; femora obscure yellow at bases, on distal half becoming dark brown, this area enclosing two yellow rings, one apical, the other subterminal in position, the total effect being of two dark brown and two yellow rings; tibiæ yellowish brown, the tips dark brown; tarsi light brown, the terminal segments blackened. Wings (Fig. 4) cream-yellow, more saturated along the costal margin, with a very heavy brown pattern, distributed as a series of four costal areas, broad seams to the cord, outer end of cell *1st* M_2, and the longitudinal veins of the medial and cubital fields; area at stigma confluent posteriorly with the seaming along cord; wing-tip broadly and almost evenly darkened; cells *M* and *Cu* extensively suffused with brown; extensive darkened clouds at ends of anal veins, sending paler washes basad into their respective cells; veins yellow in the ground-area, darker in the clouded portions. Venation: Sc_1 ending about opposite one-third the length of *Rs*, Sc_2 at its tip; *h* and a supernumerary crossvein in cell *Sc* present but only faintly preserved; vein R_{4+5} bending strongly caudad at *r–m*, narrowing the latter; cell *1st* M_2 about as long as the longest vein beyond it; *m–cu* close to fork of *M*.

Abdomen brownish black, the caudal margins of the segments narrowly and very indistinctly paler; hypopygium dark. Male hypopygium (Fig. 16) with the tergite transverse, each lateral lobe low, provided with about fifteen strong setæ. Ventral dististyle large and fleshy, the rostral prolongation small, slender, at base with a common tubercle that bears two straight, subequal spines of moderate length. Dorsal dististyle a chitinized sickle, widest just before the unusually long pointed apex. Gonapophyses with the mesal apical lobe pale, blunt at apex, the lateral arms of the apophysis very narrow.

HABITAT.—Brazil.

HOLOTYPE, ♂, Mount Roraima, summit, altitude 8600 feet, November, 1927 (G. H. H. Tate). ALLOTOPOTYPE, ♀.

Limonia (*Geranomyia*) *tatei* is named in honor of the collector of this unusually interesting series of Tipulidæ, Mr. G. H. H. Tate. This fly is very distinct in the heavy wing-pattern, which is approached in the Neotropical fauna only by *L.* (*G.*) *townsendi* (Alexander) of Peru, an otherwise very different fly.

Limonia (Geranomyia) arecuna, new species

Figures 5 and 17

General coloration reddish brown, the præscutum unmarked; legs brown; wings subhyaline, unmarked except for the stigma; *Sc* short, Sc_1 ending opposite the origin of *Rs;* a supernumerary crossvein in cell *Sc;* male hypopygium with the ventral dististyle large and fleshy, the rostral spines straight, separated at base, the innermost from a slightly developed tubercle; gonapophyses acutely pointed at tips.

MALE.—Length, excluding rostrum, about 4.6 mm.; wing, 5.5 mm.; rostrum, about 2.3 mm.

FEMALE.—Length, excluding rostrum, about 6 mm.; wing, 5.8–6.5 mm.; rostrum, about 2.4 mm.

Rostrum relatively elongate, black; maxillary palpi black. Antennæ black throughout. Head light gray, variegated with blackish areas on vertex.

Mesonotum reddish brown, without markings; scutellum more yellowish testaceous. Pleura yellowish testaceous. Halteres pale, the knobs infuscated. Legs with the coxæ and trochanters yellow; femora yellowish at bases, passing into brown; tibiæ darker brown, the tarsi slightly paler, especially the posterior tarsi; fore tibiæ not blackened at tips, as is the case in the *tibialis* group. Wings (Fig. 5) subhyaline, unmarked except for the small oval brown stigma; veins darker brown. Venation: Sc_1 ending opposite or just beyond the origin of *Rs*, Sc_2 a short distance from its tip; a supernumerary crossvein in cell *Sc* beyond midlength; *m-cu* close to fork of *M*.

Abdomen dark reddish brown, the extreme caudal margins of the segments paler; sternites brownish yellow. Male hypopygium (Fig. 17) with the tergite transverse, the very low lobes provided with numerous setæ. Ventral dististyle large and fleshy, its rostral prolongation small and slender, the two spines straight, obliquely acute at tips, separated at base, the innermost arising from a small basal tubercle. Dorsal dististyle a small curved sickle. Gonapophyses with the mesal-apical lobe an acutely pointed blade.

HABITAT.—Brazil.

HOLOTYPE, ♂, Mount Roraima, summit, altitude 8600 feet, November, 1927 (G. H. H. Tate). ALLOTOPOTYPE, ♀. PARATOPOTYPE, ♀.

Limonia (Geranomyia) arecuna is named after the Arecuna Indians, living near Mount Roraima. In its general appearance, the present fly most closely resembles the Cuban *L. (G.) myersiana* Alexander, differing in the lack of blackened tips to the fore tibiæ, and in the structure of the male hypopygium.

Limonia (Geranomyia) rubiginosa, new species

Figure 6

General coloration of thorax reddish, the præscutum darker medially but otherwise unmarked; antennæ black throughout; halteres dusky; legs chiefly dark brown, the femora not variegated with annuli at or near tips; wings with a brownish tinge, the brown pattern very restricted in area; *Sc* short; *m-cu* close to fork of *M*.

FEMALE.—Length, excluding rostrum, about 5–5.5 mm.; wing, 6.2–6.8 mm.; rostrum, 2.6 mm.

Rostrum about one-half the length of body, black, the labial palpi paling at extreme tips. Antennæ black; flagellar segments subcylindrical, closely applied to one another; verticils relatively small and inconspicuous; terminal segment about one-half longer than the penultimate, pointed at apex. Head light gray, the posterior vertex a trifle darkened on either side of median line.

Mesonotal præscutum reddish, more darkened medially; posterior sclerites of mesonotum dark reddish brown to dark brown, pruinose. Pleura reddish yellow. Halteres dusky. Legs with the coxæ reddish yellow; trochanters yellow; femora yellow basally, the fore femora almost uniformly yellow, the posterior femora passing into dark brown shortly beyond base; remainder of legs brown. Wings (Fig. 6) with a brownish tinge; stigma subcircular, dark brown; very restricted to scarcely evident dark clouds at Sc_2, origin of *Rs*, along cord and on outer end of cell *1st* M_2; veins light brown, darker in the clouded areas. Venation: Sc_1 ending opposite or just before origin of *Rs*, Sc_2 at its tip; a supernumerary crossvein close to midlength of cell *Sc*; *Rs* weakly angulated at origin; cell *1st* M_2 long, gently widened outwardly, the second section of M_{1+2} subequal to or a little longer than the outer section; *m–cu* at or close to fork of *M*; vein *2nd A* sinuous, the cell wide.

Abdomen dark brown, the caudal margins of the sternites very narrowly pale; genital segment reddish yellow, the valves yellow, the tergal valves very gently upcurved, their tips subobtuse; sternal valves short and stout, their tips pointed.

HABITAT.—Venezuela. HOLOTYPE, ♀, Mount Duida, December 10, 1928 (G. H. H. Tate); Coll. No. 446. PARATOPOTYPE, ♀, November 29, 1929; Coll. No. 410.

Limonia (*Geranomyia*) *rubiginosa* is distinct from all described regional species in the unvariegated wings, with *Sc* short, the uniformly reddish thorax, the dusky halteres, and the unringed femora.

Helius (Helius) albitarsis (Osten Sacken)

Rhamphidia albitarsis OSTEN SACKEN, 1887, Berliner Entomolog. Zeitschr., XXXI, p. 184.

One broken specimen from Mount Duida, Venezuela, November 28, 1928 (G. H. H. Tate); Coll. No. 394. The species was described from Porto Rico but is now known to have a wide range in the northern Neotropical region. It is more than possible that several closely allied species have been confused under this specific name.

Limnophila kaieturana Alexander

Limnophila kaieturana ALEXANDER, 1930, Ann. Ent. Soc. America, XXIII, p. 733.

One broken female, Mount Duida, Venezuela, November 28, 1928 (G. H. H. Tate); Coll. No. 394. Known previously only from the type-locality, Kaietur Falls, British Guiana.

Limnophila roraima, new species

Figure 7

General coloration pale ochreous, the pronotum and mesonotal præscutum with a capillary dark brown median vitta; antennæ short in both sexes, the scape and extreme base of flagellum pale; legs yellow; wings cream-yellow, with a pale brown pattern that is mostly confined to the vicinity of the veins; *m–cu* at near midlength of cell *1st* M_2.

MALE.—Length, about 8–8.5 mm.; wing, 8–8.6 mm.

FEMALE.—Length, about 8 mm.; wing, 8–8.5 mm.

Rostrum and palpi dark brown. Antennæ short in both sexes; scape and basal one or two of flagellar segments pale; remaining flagellar segments dark brown, the basal and intermediate segments weakly bicolorous, the extreme base of each segment being pale; flagellar segments oval. Head yellowish gray.

Pronotum and mesonotal præscutum buffy or ochreous, with a capillary median dark brown line, the remainder of the usual three præscutal stripes scarcely darker than the ground-color; remainder of mesonotum ochreous; scutal lobes slightly darkened; posterior portion of postnotal mediotergite with two confluent more brownish areas. Pleura chiefly yellowish ochreous, in more heavily patterned specimens with brown areas on anepisternum and pteropleurite, to form a vague dorsal darkening. Halteres pale yellow. Legs with the coxæ and trochanters yellow; remainder of legs yellow, the terminal tarsal segments slightly darker. Wings (Fig. 7) cream-yellow, with a pale brown pattern, arranged as follows: extreme bases of cells *R* and *M*, origin of *Rs*, fork of *Sc*, along cord and outer end of cell *1st* M_2, R_2, tip of R_3, fork of M_{1+2}, *m–cu*, at about two-thirds the length of cell *M*, axilla, and as marginal circular clouds at ends of veins M_2 to *2nd A*, inclusive; in more heavily patterned individuals with additional clouds at near midlength of cells R_4 and R_5; veins yellow, darker in the clouded areas. Venation: Sc_1 ending just before the fork of *Rs*, Sc_2, longer, near its tip; inner ends of cells R_4, R_5, and *1st* M_2 in slightly oblique alignment; *m–cu* at or beyond midlength of cell *1st* M_2; anterior arculus preserved.

Abdomen yellowish to dark brown, the sternites clearer yellow; hypopygium yellow.

HABITAT.—Brazil.

HOLOTYPE, ♂, Mount Roraima, summit, altitude 8600 feet, November, 1927 (G. H. H. Tate); Coll. No. 40. ALLOTOPOTYPE, ♀. PARATOPOTYPES, 10 ♂, ♀, some in poor condition. PARATYPES, 2 fragments, altitude 6800 feet, November, 1927 (Gen. C. M. da S. Rondon).

Limnophila roraima was by far the most abundant crane-fly found on the summit of Roraima. It is allied to *L. kaieturana* Alexander and *L. roraimicola,* new species, but is well distinguished by the pale ochreous coloration and the wing-pattern, which produces the effect of a very pale brown spotting on a cream-yellow ground.

Limnophila roraimicola, new species

Figure 8

General coloration gray, the præscutum with three brown stripes; wings whitish subhyaline, with a heavy brown pattern, including a series of nearly twenty more or

less confluent brown spots in the costal cell; remainder of wing-disk with a heavy brown pattern, some of the areas with pale centers to produce an ocellate appearance; anterior arculus preserved; abdomen black.

FEMALE.—Length, about 8.5 mm.; wing, 9 mm.

Rostrum gray; palpi black. Antennæ with the scapal segments dark brown, the first sparsely dusted with gray; flagellar segments broken. Head dark gray, somewhat clearer in front and on the orbits; two median, dark, more or less impressed spots on vertex.

Mesonotum gray, the præscutum with a brown median stripe, and shorter, less distinct, lateral stripes; interspaces with brown setigerous punctures; no tuberculate pits; pseudosutural foveæ small, black, comma-shaped; posterior sclerites of mesonotum brown, gray pruinose. Pleura pale brown, pruinose, the anepisternum darker. Halteres pale, the knobs weakly darkened. Legs with the coxæ and trochanters light brown, the former sparsely pruinose; remainder of legs broken. Wings (Fig. 8) whitish subhyaline, with a heavy dark brown pattern, including a series of nearly twenty spots in cell *C*, these more or less confluent; areas at origin of *Rs*, at two-thirds the length of cell *M*, at end of vein *2nd A;* two additional areas in cell *2nd A* are brown with paler centers to produce a more or less ocellate effect; solid brown areas appear as a seam from costa in the stigmal area, across the cord, narrowly interrupted on M_{3+4}; outer end of cell *1st* M_2 darkened; several oval brown clouds in the cells beyond the cord, these chiefly grouped at and near the wing-tip; veins pale, somewhat darker in the infuscated areas. Venation: Sc_1 ending opposite midlength of R_{2+3+4}, Sc_2 at its tip; *Rs* long, nearly straight; R_2 less than one-half R_{1+2}; cell R_3 deep; inner ends of cells R_4, R_5, and *1st* M_2 in subtransverse to weakly oblique alignment; *m–cu* at near one-third the length of cell *1st* M_2; anterior arculus preserved.

Abdomen black. Ovipositor with the valves elongate, the cerci dark basally, paler at tips.

HABITAT.—Brazil.

HOLOTYPE, ♀, Mount Roraima, summit, altitude 8600 feet, November, 1927 (G. H. H. Tate).

Limnophila roraimicola is allied to *L. kaieturana* Alexander and *L. roraima*, new species, but is very distinct from both species in the heavy dark spotted pattern in the costal cell of the wings.

Atarba (Atarba) unilateralis, new species

Figures 9 and 18

General coloration yellow; antennæ (male) elongate, exceeding one-half the body; flagellar segments bicolorous, the base of each segment blackened, the apex yellow; each flagellar segment with a very long, unilaterally arranged bristle; legs yellow; wings yellow, the small diffuse stigma a trifle darker; *Sc* relatively long, Sc_1 extending to beyond one-third the length of the long *Rs;* abdominal tergites weakly dimidiate, the bases yellow, the apices more broadly pale brown.

MALE.—Length, about 6 mm.; wing, 6.3 mm.; antenna, about 4.5 mm.

Rostrum yellow; palpi dark brown. Antennæ (male) elongate, as shown by the measurements; scape and first flagellar segment yellow; succeeding flagellar segments yellow, the base blackened, on the proximal segments this including about the

basal third, on the outer segments becoming more extensive but somewhat paler; flagellar segments elongate-cylindrical, with an abundant erect elongate pubescence and one very long bristle that considerably exceeds the pubescence on each segment, these bristles unilaterally arranged; on basal segments the bristle is placed beyond midlength of the segment, on the outer segments becoming more basal in position; terminal segment a little shorter than the penultimate. Head light gray, more yellowish in front.

Mesonotum yellow, becoming more testaceous-yellow on the posterior sclerites. Pleura yellow, the dorsal sclerites more darkened. Halteres dusky, paler at base of stem. Legs with coxæ and trochanters yellow; remainder of legs yellow, the terminal tarsal segments infuscated. Wings (Fig. 9) broad, yellow, the small diffuse stigma a little darker; veins yellowish brown. Venation: *Sc* relatively long, Sc_1 ending beyond one-third the length of *Rs*, the latter elongate, about one-half longer than the basal section of R_3; cell *1st* M_2 long-pentagonal; *m–cu* at the fork of *M*.

Abdominal tergites weakly bicolorous, the bases of the segments light yellow, the apices more broadly pale brown; subterminal segments blackened; sternites and hypopygium more uniformly yellow. Male hypopygium (Fig. 18) with the sternal plate longer than broad, the lateral arms narrowly acute, glabrous. Outer dististyle slender, the apex bifid, the outer margin with three major spines and three progressively smaller appressed denticles. Ædeagus relatively small and slender, in slide mounts not extending to beyond midlength of the basistyle.

HABITAT.—Venezuela.

HOLOTYPE, ♂, Mount Duida, December 28, 1928 (G. H. H. Tate); Coll. No. 394.

Atarba (*Atarba*) *unilateralis* is most nearly allied to *A.* (*A.*) *cincticornis* Alexander (British Guiana) in the pattern of the elongate antennal flagellum, which has the bases of the segments blackened, the apices broadly pale. It differs most evidently in the wing-venation, in the long *Sc* and *Rs*, and in the structure of the antennæ.

Teucholabis (Teucholabis) duidensis, new species

Figure 10

General coloration of mesonotum reddish, the præscutum with three black areas, each scutal lobe with two such areas; posterior legs entirely black, fore legs with femoral bases yellow; wings whitish, the apex and a narrow seam at cord dark brown; *m* long and arcuated, nearly twice the basal section of M_3.

Sex(?).—Wing, 8 mm.

Rostrum and palpi black. Antennæ black throughout; flagellar segments oval, the basal six more enlarged, short-oval, the remaining segments smaller and more crowded; terminal segment very small. Head black.

Pronotum reddish yellow. Mesonotal præscutum reddish, with three polished black areas, one median on cephalic fifth of the sclerite, the others on lateral margins behind the pseudosutural foveæ; scutum reddish, each lobe with a large oval black center and smaller lateral areas just beind the suture; scutellum reddish orange; postnotal mediotergite similar, margined laterally with black. Pleura orange, with a large central area occupying most of the mesopleura, including the dorsal sterno-

pleurite and most of the anepisternum; meron black; pleurotergite orange, darkened ventrally. Halteres black. Legs with the fore and middle coxæ reddish yellow; posterior coxæ and trochanters black; fore legs black, the basal third of femora yellow; posterior legs entirely black (middle legs broken). Wings (Fig. 10) whitish, the apex and a narrow but conspicuous seam at cord dark brown; prearcular region and cell *Sc* darkened; outer end of cell *1st* M_2 narrowly seamed with brown; stigmal darkening larger than in *decora;* veins brownish black. Venation: *Sc* long, Sc_1 ending beyond five-sixths the length of *Rs;* vein R_3 only gently curved; *m* unusually long, nearly twice the basal section of M_3; *m–cu* close to the fork of *M*.

Abdomen broken.

HABITAT.—Venezuela.

HOLOTYPE, sex(?), Mount Duida, December 30, 1928 (G. H. H. Tate); Coll. No. 497.

Closely allied to *Teucholabis* (*Teucholabis*) *decora* Alexander (Brazil: Para), differing especially in the details of venation, as the very long, arcuated *m*.